



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

M

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,835	06/27/2003	Takehiro Saruwatari	033737.0141	7611
25461	7590	08/06/2004	EXAMINER	
SMITH, GAMBRELL & RUSSELL, LLP SUITE 3100, PROMENADE II 1230 PEACHTREE STREET, N.E. ATLANTA, GA 30309-3592			WINNER, TONY H	
		ART UNIT	PAPER NUMBER	3611

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/608,835	SARUWATARI ET AL.
	Examiner Tony H. Winner	Art Unit 3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 09 June 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-3 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 27 June 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. 10/050,144.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)               |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/27/03</u> . | 6) <input type="checkbox"/> Other: _____ .  |

***Acknowledgment***

1. Receipt of an election of species filed 6/9/04 has been acknowledged and entered. In light of applicants' response, the office is withdrawing the election requirement and claims 1-3 will be examined on the merit. Claims 4-11 have been canceled.

***Claim Objections***

2. Claims 1 and 3 are objected to because of the following informalities: The words "their axes" of claim 1 lack antecedent basis and also unclear. Claim 3 line 3 the phrase "the relative axial movement" lacks antecedent basis. The examiner suggests the following correction to overcome the objection:

- a. Claim 1 line 3 inserts - a first bevel gear, including a first axis, provided --,
- b. Claim 1 line 4 inserts - a second bevel gear, including a second axis, meshed with the first bevel gear --,
- c. Claim 1 line 4 replaces "their axes" with - the axes --,
- d. Claim 3 line 3 replaces the words "the relative" with – a relative --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji (from the applicants' IDS Patent Abstracts of Japan JP-09123927) in view of Watanabe et al. (US. patent 6,561,306 B2).

Kenji discloses an electric power steering system comprising:

- a. a first bevel gear (28) including a first axis driven into rotation by an electric motor;
- b. a second bevel gear (52) including a second axis meshed with the first bevel gear with the axes intersecting each other and allowed to move toward the first bevel gear;
- c. a rack shaft linearly moved thereby steering steerable road wheels;
- d. a rotary element rotatably supported by a rack housing via a rolling bearing as enclosing the rack shaft and operating to transmit the rotation of the electric motor via the first bevel gear and the second bevel gear; and
- e. a power conversion mechanism formed between the rotary element and the rack shaft for converting the rotary motion of the rotary element to the linear motion of the rack shaft, wherein
- f. the rack housing comprises a first housing (see attachment A) for supporting one end of the rotary element as allowing for the relative axial movement thereof, and a second housing (attachment A) for supporting the other end of the rotary element as inhibiting the relative axial movement thereof, and wherein a housing adjuster ( 56) provides for adjustment of the relative axial

positions of the first housing and the second housing with respect to the rack shaft.

Kenji lacks the teaching of a biasing member for biasing the second bevel gear toward the first bevel gear.

Watanabe teaches an electric steering apparatus with a spring member (23 and col 8 lines 15-20) for biasing the second bevel gear toward the first bevel gear, thus reduces backlash.

Based on the teaching of Watanabe, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electric power steering device of Kenji to include the spring member means of Watanabe so as to provide a biasing means for pushing the second bevel gear toward the first bevel gear, thus reduces backlash.

With regard to claims 2 and 3, Kenji as modified by Watanabe meets all the claim limitations.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takehara et al. ('898), Nakamura et al. ('680), Takaoka ('171), and Fuji ('495) are cited of interest.
5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Anthony H. Winner whose telephone number is (703) 306-5957. The examiner can normally be reached on Monday-Friday from 9:30 am to 6:30 pm. If attempts to reach the examiner by telephone are

Art Unit: 3611

unsuccessful, the examiner's supervisor, Lesley Morris, can be reached at (703) 308-0629. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



**TONY WINNER**  
**PATENT EXAMINER**

August 3, 2004